

We Claim:

1. In combination with a process chamber designed for performing a processing step for a substrate, a configuration for reducing particle contamination on said substrate, the configuration comprising:

a chuck for receiving a backside of said substrate, said chuck configured inside said process chamber, said chuck formed with a vacuum port and a plurality of vacuum channels for fixing said substrate, said plurality of vacuum channels connected to said vacuum port;

a set of at least three movable arms for lifting said substrate from said chuck, each of said arms having a tapered shelf;

a device for controlling movement of said arms, said device for controlling movement of said arms including a drive;

at least one rinse nozzle for dispensing a solvent liquid;

a device for supplying said solvent liquid to said rinse nozzle;

a first source of gas pressure for providing a first gas pressure smaller than a gas pressure of said process chamber for providing nearly vacuum conditions;

a second source of gas pressure for providing a second gas pressure larger than said gas pressure of said process chamber for providing a neutral gas to said plurality of vacuum channels; and

a switching device having a first switched state for applying said first gas pressure to said vacuum port and a second switched state for applying said second gas pressure to said vacuum port.

2. The combination according to claim 1, wherein:

said process tool is a spin coater that has a device for dispensing a resist on a frontside of said substrate;

said frontside of said substrate is opposite said backside of said substrate; and

said chuck is designed to rotate around an axis.

3. The combination according to claim 2, wherein said set of arms is mounted for rotation around said axis.

4. The combination according to claim 2, also in combination with said substrate, wherein said substrate is a semiconductor wafer having a diameter of at least 300 millimeters, and said chuck has a contact surface with a diameter of at least 280 millimeters.

5. The combination according to claim 4, further comprising:

an adjusting device;

said chuck having a contact surface; and

said adjusting device for adjusting a position and direction of said rinse nozzle for applying said solvent liquid to said backside of said wafer while said wafer is being lifted by said set of arms and for applying said solvent liquid to said contact surface of said chuck.

6. The combination according to claim 5, wherein said adjusting device can be adjusted to apply said solvent liquid to said plurality of vacuum channels of said chuck.

7. A method for reducing a number of particles on a substrate in a process tool, the method which comprises:

providing the process tool with a chuck configured therein;

loading the substrate onto the chuck such that a backside of the substrate is oriented towards the chuck;

processing the substrate;

lifting the substrate from the chuck using a set of at least three arms;

dispensing a solvent liquid onto the backside of the substrate using at least one rinse nozzle, while directing gas out off at least one vacuum port formed on the chuck in order to protect the vacuum port from being contaminated with particles; and

unloading the substrate from the chuck.

8. The method according to claim 7, which further comprises holding the substrate with the set of arms and rotating the set of arms around an axis while performing the step of dispensing the solvent liquid.

9. The method according to claim 8, which further comprises dispensing the solvent liquid onto the chuck after performing the step of lifting the substrate.

10. The method according to claim 7, which further comprises while holding the substrate with the set of the arms, using a rotating device to rotate the substrate in order to access substrate-arm-contact areas with the solvent liquid.

11. The method according to claim 7, which further comprises while holding the substrate with the set of the arms, using a rotating device to rotate the substrate in order to access substrate-arm-contact areas with the solvent liquid based on an Bernoulli-effect.